REMARKS

This Amendment is fully responsive to the final Office Action dated December 11, 2007, issued in connection with the above-identified application. A Petition for a Three-Month Extension of Time and a Request for Continued Examination (RCE) accompany this Amendment. Claims 1-13 were previously pending in the present application. With this Amendment, claims 1, 6 and 10 have been amended; and claim 2 has been canceled without prejudice or disclaimer to the subject matter therein. Accordingly, claims 1 and 3-13 are all the claims that remain pending in the present application. No new matter has been added by the amendments made to the claims. Favorable reconsideration is respectfully requested.

In the Office Action, claims 1-3 have been rejected as being unpatentable over the Applicant's Admitted Prior Art (the "AAPA") in view of Kato (U.S. Publication No. 2004/0167603, hereafter "Kato"). Claim 2 has been canceled rending the above rejection to that claim moot. Additionally, the Applicant has amended independent claim 1 to help further distinguish the present invention from the cited prior art. Specifically, as amended claim 1 recites (in relevant part) the following features:

"[a] blade driving device for use in cameras, the blade driving device comprising:...

a control means for drive-controlling the electromagnetic actuator and applying opening energization and closing energization to the electromagnetic actuator so as to allow the blade to perform an opening motion by turning on an electric power supply to move into an opened state in a photographable standby state in which a dynamic image and a still image can be photographed, and to perform an opening motion when a releasing operation is performed, and then to perform a closing motion for completion of a photograph."

The present invention, as recited in claim 1, is directed to providing a blade driving device for use in cameras that is capable of performing desired photography while allowing the mechanical blade (e.g., a shutter blade, diaphragm blade, or ND filter blade) to reliably perform a closing motion even when the camera receives an impulsive force which is caused by dropping it or bumping it in a photographable standby state. Specifically, a control means applies opening energization and closing energization to the electromagnetic actuator so as to allow the blade to

perform an opening motion by turning on an electric power supply in a photographable standby state. In the standby state, a dynamic image and a still image can be photographed. The opening motion is then again performed when a releasing operation is performed, and then a closing motion is performed for completion of a photograph.

Accordingly, since the blade is invariably positioned in the opened state prior to photography, even if the blade (to be kept in the opened state in a photographable standby state) has been closed without permission by an impulsive force from the outside, photography can be reliably performed. Additionally, since opening energization is performed without judging the state of the blade, control operations are simplified

In summary, the control means of claim 1 performs the following features that are not believed to be disclosed or suggested by the cited prior art:

1) performing an opening motion with the blade by opening energization by turning on an electric power supply to move the blade into an opened state in a photographable standby state in which a dynamic image and a still image can be photographed;

2) performing an opening motion with the blade again by opening energization when a releasing operation is performed; and

3) then performing a closing motion with the blade by closing energization for completion of a photograph.

In the Office Action, the Examiner relies on the AAPA in view of Kato for disclosing or suggesting all the features of independent claim 1. However, the Applicant maintains that the AAPA in view of Kato fails to disclose or suggest all the features noted above in claim 1 (as amended).

The AAPA discloses a camera that includes a mechanical blade openably and closably disposed in front of an image pickup element, wherein the mechanical blade blocks a part of or all of the light passing through an exposure aperture, or reduces light passing through the exposure aperture. An electromagnetic actuator (motor) enables the blade to perform an opening motion according to opening energization and a closing motion according to closing energization. Additionally, the camera also includes a control means (i.e., electric current and a

magnetic force) for drive-controlling the electromagnetic actuator.

Thus, the control means of the AAPA only applies energization to the electromagnetic actuator as follows: 1) first, the blade performs an opening motion by opening energization; and 2) next, the blade performs a closing motion by closing energization for completion of a photograph by a releasing operation. The AAPA does not disclose or suggest that the blade performs an opening motion again by opening energization when a releasing operation is performed, as recited in claim 1.

Moreover, Kato fails to overcome the deficiencies noted above in the AAPA. Kato discloses a camera that includes a mechanical blade 12 openably and closably disposed in front of an image pickup element 15. The mechanical blade 12 blocks a part of or all of light passing through an exposure aperture, or reduces light passing through the exposure. The camera also includes a mechanical blade 17 that cuts a reverse-incident light from a viewfinder 3 that is disposed in a vicinity of a relay lens 18 (i.e. disposed between the viewfinder 3 and the image pickup element 15). As described in Kato, the mechanical blade 17 opens and closes an optical path from a beam splitter 14 to the eyepiece lens 13.

Additionally, Kato also discloses actuators for driving the mechanical blade 12 and the mechanical blade 17, and a control means for drive-controlling the actuators. As described in Kato, the actuator can be forcibly operated to shift the mechanical blade 17 from the close state to the open state regardless of the state of the mechanical blade 17 when the power supply is turned on. Accordingly, the mechanical blade 17 enters the open state at power supply ON, even when the mechanical blade 17 becomes in closed state by an impact applied to the main body of the camera when the power supply is OFF.

Therefore, at best, the mechanical blade 12 corresponds to the claimed blade of the present invention and is disposed on the optical path wherethrough incident light from the exposed opening is led to the image pick up element 15, wherein the mechanical blade 17 is disposed between the view finder 3 and the beam splitter 14, but is not disposed on the optical path.

Also, as described on page 13, lines 7-18 (i.e., paragraph [0210]) of Kato, the mechanical

blade 12 is used as a shutter that is closed only a period from the end of the exposure of the image data reading to the end of the read of the imaging data in the imaging device, and the mechanical blade 17 is used as a shutter closed a period before the start of exposure to after the end of the read of the imaging device.

Thus, the control means of Kato applies energization to the electromagnetic actuator for the mechanical blade 12 as follows:

a) performs an opening motion by opening energization;

b) next, performs a closing motion by closing energization for completion of a photography by a releasing operation.

The control means of Kato applies energization to the electromagnetic actuator for the mechanical blade 17 as follows:

a) performs an opening motion by turning on an electric power supply to move into an opened state so that an operator can watch a subject through lenses 3,18, by opening energization;

b) next, performs a closing motion by closing energization before completion of a photograph when a releasing operation is performed; and

c) then, performs an opening motion by opening energization after completion of a photograph.

Based on the above discussion, the operation of the mechanical blades 12, 17 described in of Kato is clearly different from the operation of the blade of claim 1. Accordingly, one of ordinary skill in the art would not be motivated to combine with the teachings of Kato with the AAPA to arrive at the present invention, as recited in claim 1. Moreover, even if the AAPA and Kato were combined, the combination still fails to disclose or suggest a blade that performs an opening motion again by opening energization when a releasing operation is performed.

Accordingly, no combination of the AAPA and Kato would result in, or otherwise render obvious, independent claim 1. Similarly, no combination of the AAPA and Kato would result in, or otherwise render obvious, claim 3 at least by virtue of its dependency from independent claim 1.

In the Office Action, claims 4 and 5 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the AAPA in view of Kato, and further in view of Yamaguchi (U.S. Patent No. 5,764, 292).

Claims 4 and 5 depend from independent claim 1. As noted above, the AAPA and Kato fail to disclose or suggest the features recited in claim 1 (as amended). Additionally, Yamaguchi fails to overcome the deficiencies noted above in the AAPA and Kato.

Specifically, Yamaguchi discloses a blade driving device for use in cameras, wherein the blade driving device includes a diaphragm blade 2, 3 as a mechanical blade, an electromagnetic actuator, an image pickup device, and a CPU as a control means for drive-controlling the electromagnetic actuator. As described in Yamaguchi, the control means performs the following operation:

a) when a release button is depressed to a first distance a switch SW1 is switched on;

b) the diaphragm blade 2, 3 performs an opening motion by opening energization;

c) when a release button is depressed to a second distance a switch SW2 is switched on; and

d) the diaphragm blade 2, 3 performs a closing motion by closing energization for completion of a photograph when a value EV is less than EV14 (see e.g., Fig. 5 and col. 5 lines 12-58).

Accordingly, Yamaguchi merely discloses an opening and closing operation of the diaphragm blade 2, 3 after a releasing operation is performed. Thus, Yamaguchi fails to disclose or suggest that a camera blade performs an opening motion <u>again</u> by opening energization when a releasing operation is performed, as in claim 1.

Therefore, no combination of the AAPA, Kato and Yamaguchi would result in, or otherwise render obvious, claims 4 and 5 at least by virtue of their dependency from independent claim 1.

In the Office Action, claims 6-9 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the AAPA in view of Yamaguchi (U.S. Patent No. 5,764,292, hereafter "Yamaguchi"). The Applicant have amended independent claim 6 to help further distinguish the

present invention from the cited prior art. Specifically, as amended claim 6 recites (in relevant part) the following features:

"[a] blade driving device for use in cameras, the blade driving device comprising:...

a control means for drive-controlling the electromagnetic actuator and applying opening energization and closing energization to the electromagnetic actuator so as to allow the blade to perform an opening motion by turning on an electric power supply to move into an opened state in a photographable standby state in which a dynamic image and a still image can be photographed, and to perform an opening motion when an amount of light incident on the image pickup element becomes equal to or less than a predetermined level in the photographable standby state, and then to perform a closing motion for completion of a photograph by a releasing operation."

The features recited in claim 6 are similar to those recited in claim 1 with a slight difference. Specifically, as recited in claim 6, the control means applies opening energization and closing energization to the electromagnetic actuator so as to perform an opening motion by turning on an electric power supply to move the blade in an opened state in standby state in which a dynamic image and a still image can be photographed. However, the blade also performs an opening motion when an amount of light incident on the image pickup element becomes equal to or less than a predetermined level in the photographable standby state, and then to performs a closing motion for completion of a photograph by a releasing operation.

In summary, the control means of claim 6 performs the following features that are not believed to be disclosed or suggested by the cited prior art:

1) performing an opening motion with the blade by opening energization by turning on an electric power supply to move a blade into an opened state in a photographable standby state in which a dynamic image and a still image can be photographed;

2) performing an opening motion with the blade again by opening energization when an amount of light incident on the image pickup element becomes equal to or less than a predetermined level in the photographable standby state; and

3) then performing a closing motion with the blade by a closing energization for

completion of a photograph by a releasing operation.

In the Office Action, the Examiner relies on the AAPA in view of Yamaguchi for disclosing or suggesting all the features of independent claim 6. However, the Applicant maintains that the AAPA in view of Yamaguchi fails to disclose or suggest the features noted above in claim 6 (as amended).

As noted above, the control means of the AAPA only applies energization to the electromagnetic actuator as follows: 1) first, the blade performs an opening motion by opening energization; and 2) next, the blade performs a closing motion by closing energization for completion of a photography by a releasing operation. Additionally, Yamaguchi merely discloses an opening and closing operation of the diaphragm blade 2, 3 after a releasing operation is performed.

Thus, the AAPA and Yamaguchi fails to disclose or suggest a blade that performs an opening motion again by opening energization, let alone a blade that performs an opening motion again when an amount of light incident on the image pickup element becomes equal to or less than a predetermined level in the photographable standby state, as in independent claim 6.

Accordingly, no combination of the AAPA and Yamaguchi would result in, or otherwise render obvious, independent claim 6. Similarly, no combination of the AAPA and Yamaguchi would result in, or otherwise render obvious, claims 7-9 at least by virtue of their dependency from independent claim 6.

In the Office Action, claims 10 and 11 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the AAPA in view of Kato, and further in view of Toguchi.
The Applicant has amended independent claim 10 to help further distinguish the present invention from the cited prior art. Specifically, as amended claim 10 recites (in relevant part) the following features:

"[a] blade driving device for use in cameras, the blade driving device comprising:...

a control means for drive-controlling the electromagnetic actuator and applying opening energization and closing energization to the electromagnetic actuator so as to allow the blade to

perform an opening motion by turning on an electric power supply to move into an opened state in a photographable standby state in which a dynamic image and a still image can be photographed, and to perform an opening motion when a signal exceeding a predetermined level is output from a shock sensor used to detect an impulsive force in the photographable standby state, and then to perform a closing motion for completion of a photograph by a releasing operation."

The features recited in claim 10 are similar to those recited in claim 1 with a slight difference. Specifically, the control means applies an opening energization and closing energization to the electromagnetic actuator so as to allow the blade to perform an opening motion by turning on an electric power supply to move into an opened state in a photographable standby state in which a dynamic image and a still image can be photographed. However, the control mean also performs an opening motion when a signal exceeding a predetermined level is output from a shock sensor used to detect an impulsive force in the photographable standby state. The control means then performs a closing motion for completion of a photograph by a releasing operation.

In summary, the control means of claim 10 performs the following features that are not believed to be disclosed or suggested by the cited prior art:

1) performing an opening motion with the blade by opening energization by turning on an electric power supply to move a blade into an opened state in a photographable standby state in which a dynamic image and a still image can be photographed;

2) performing an opening motion with the blade again by opening energization when a signal exceeding a predetermined level is output from a shock sensor used to detect an impulsive force in the photographable standby state; and

3) then performing a closing motion with the blade by a closing energization for completion of a photograph by a releasing operation.

Accordingly, when a signal exceeding a predetermined level is output from a shock sensor because of a dropping of the device or a bumping thereof against another object in a photographable standby state, the blade is regarded as having completely or partially closed the

aperture, and opening energization is applied to the electromagnetic actuator to make the blade perform the opening motion.

As noted above, the control means of the AAPA only applies energization to the electromagnetic actuator as follows: 1) first, the blade performs an opening motion by opening energization; and 2) next, the blade performs a closing motion by closing energization for completion of a photography by a releasing operation.

Additionally, in Kato, the operation of the mechanical blades 12, 17 are clearly different from the operation of the blade of the present invention. Accordingly, even if the AAPA and Kato were combined, the combination still fails to disclose or suggest a blade that performs an opening motion again.

Finally, Toguchi fails to overcome the deficiencies noted above in the AAPA and Kato.

Specifically, Toguchi discloses a shock sensor 28 for detecting impacts made on the main body of a camera. The shock sensor 28 senses an impact and sends an output signal to a CPU. As described in Toguchi, when a lens-barrel, lenses, and a clutch mechanism or the like receive an impact, information related to the operation of the camera is indicated (e.g., prohibited, the camera is wrong, etc.).

However, Toguchi does not disclose that a blade of the camera performs an opening motion again when a signal exceeding a predetermined level is output from a shock sensor used to detect an impulsive force in the photographable standby state, as recited in independent claim 10.

Accordingly, no combination of the AAPA, Kato and Toguchi would result in, or otherwise render obvious, independent claim 10. Similarly, no combination of the AAPA, Kato and Toguchi would result in, or otherwise render obvious, claim 11 at least by virtue of its dependency from independent claim 10.

In the Office Action, claims 12 and 13 have been rejected as being unpatentable over the AAPA in view of Kato, and further in view of Yamaguchi.

Claims 12 and 13 depend from independent claim 10. As noted above, the AAPA and Kato and Yamaguchi fail to disclose or suggest all the features recited in claim 10 (as amended).

Additionally, Toguchi fails to overcome the deficiencies noted above in the AAPA and Kato. Accordingly, no combination of the AAPA, Kato and Toguchi would result in, or otherwise render obvious, claims 12 and 13 at least by virtue of their dependency from independent claim 10.

In light of the foregoing, the Applicant respectfully requests that the Examiner withdraw the rejections presented in the Office Action dated December 11, 2007, and pass the present application to issue. The Examiner is invited to contact the undersigned attorney by telephone to resolve any remaining issues.

Respectfully submitted,

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